



# Microsoft Surface Pro 2 Teardown

Microsoft Surface Pro 2 tablet teardown, October 22, 2013.

Written By: Sam Lionheart



## INTRODUCTION

Today, Microsoft adds a new surface to their tablet line. No, not a third dimension—leave those 3D glasses at the theater. Instead, let your friends at iFixit break out the X-ray specs and show you what's inside the new Surface Pro 2.

Want to take a look-see into more iFixit fun? Peer into our [Facebook](#), look through our rose-tinted [Instagram](#) lens, or peek at our [Twitter](#).

[video: <https://www.youtube.com/watch?v=ST2LyvYLvp8>]

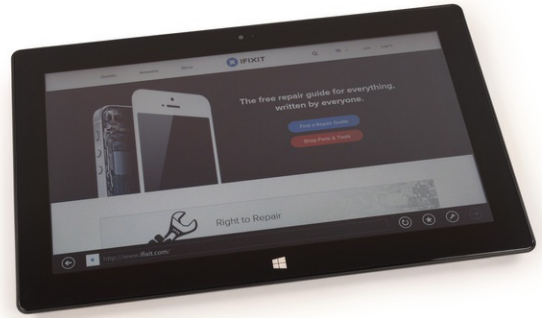
---



### TOOLS:

- [Heat Gun](#) (1)
  - [iFixit Opening Picks set of 6](#) (3)
  - [Spudger](#) (1)
  - [T3 Torx Screwdriver](#) (1)
  - [T4 Torx Screwdriver](#) (1)
  - [T5 Torx Screwdriver](#) (1)
  - [Tweezers](#) (1)
  - [Magnetic Project Mat](#) (1)
  - [Plastic Cards](#) (1)
-

## Step 1 — Microsoft Surface Pro 2 Teardown



- What's beneath the surface of Microsoft's latest tablet? A fair number of puns, but also some familiar, and improved, hardware:
  - 10.6 inch ClearType Full HD Display with a resolution of 1920 x 1080
  - 4th generation Intel® Core™ i5 Processor
  - Wi-Fi (802.11a/b/g/n) + Bluetooth 4.0 Low Energy technology
  - 64/128 GB or 256/512 GB storage capacity
  - 4 GB RAM (models with 64/128 GB storage) or 8 GB RAM (models with 256/512 GB storage)
  - Two 720p HD cameras, front and rear-facing
  - Full-size USB 3.0, Mini DisplayPort, and microSDXC card reader

## Step 2



- The Surface Pro 2 sports a 2-stage kickstand, with options for a 24 or 40-degree viewing angle.
  - Oh, how kickstands have progressed [since we were kids](#) ...
- The kickstand is secured with two screws. Happily, our new [Pro Tech Screwdriver Set](#) includes the perfect T5 Torx driver to reach in and get this teardown started.
- The kickstand comes off with little fuss, but if the [previous model](#) is any indication, repairability issues will soon begin to ... show themselves.

## Step 3



- As pacifists, we prefer our trusty [iOpener](#). But when pushed, we're not afraid to push back with [the big \(heat\) guns](#).
- Time to poke a [plethora](#) of picks under the now-molten adhesive. The use of oodles of dainty picks over brute force ensures our ribbon cables' protection.
- ① Let the record show that you can fit at least 21 [iFixit Opening Picks](#) under the display of the Surface Pro 2.
- We slowly but surely free the Surface Pro 2's display, trapped like [a baby diplodocus in a treacherous tar pit](#) of black adhesive.

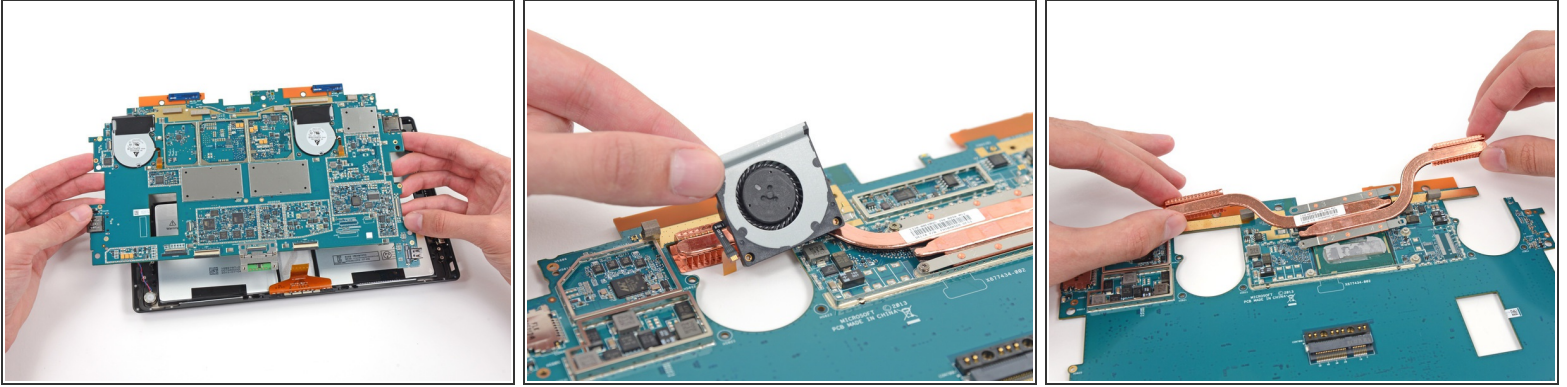
## Step 4



- We flick aside four ribbon cables, and with that, this tablet's internals are revealed to the world.
  - At first glance things look eerily similar to last time, although the motherboard is a pretty new shade of ...[blue? Green?](#)
  - Before we can poke or prod any components, we'll first have to extract the dozens of screws holding this sucker together.
    - And whaddya know—it's the same [52 screws](#) (of 3 different sizes) seen in the previous generation, holding in a plastic bezel and two metal brackets.
- i** As much as we love screws, 52 seems like overkill, and we've only just scratched the...exterior of this device.

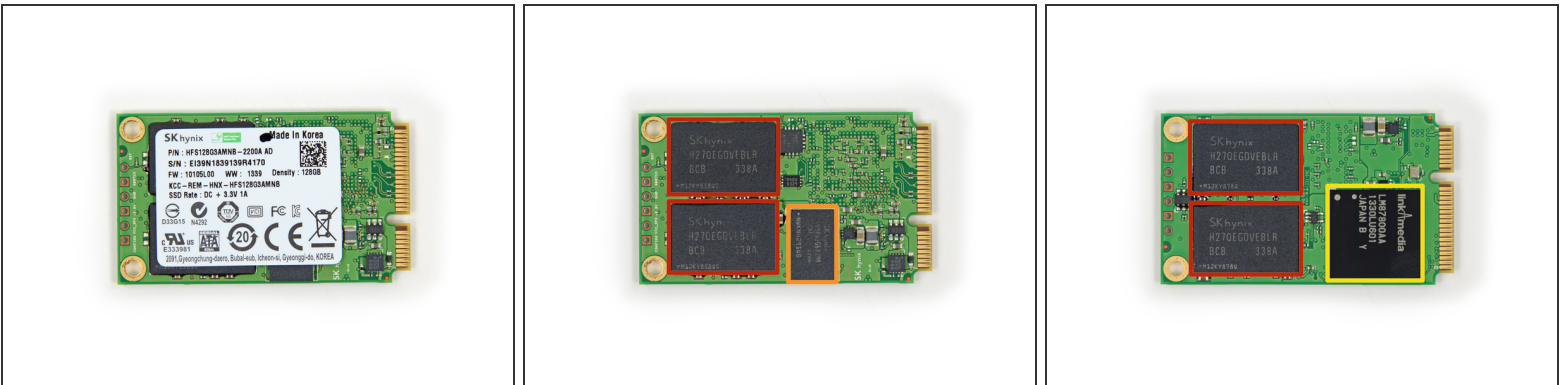


## Step 5



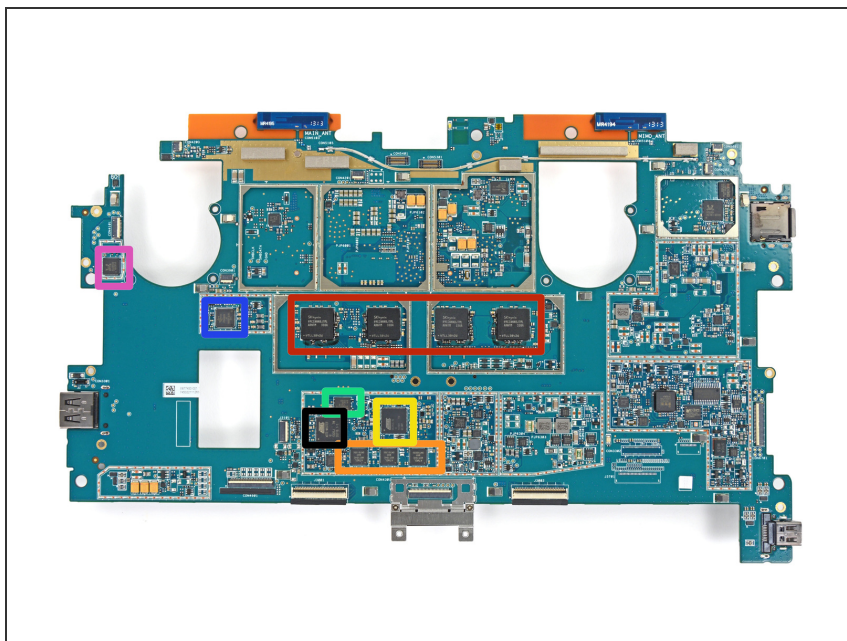
- [Finally](#), the motherboard is free and we can get at the fun stuff.
- Changes to the cooling methods from the original Surface Pro are strictly software-based: the fans [remain the same](#), but [run less frequently](#) to minimize power usage.
- If you fancy a little copper with your tablet, the Surface Pro 2 has it: a notebook-worthy heat sink rounds out the cooling.

## Step 6



- We've got storage! This time around, Microsoft shifts from a Micron/Marvell combination to one single IC manufacturer, SK Hynix.
- [SK Hynix HFS128G3AMNB](#) 128 GB mSATA 6.0 Gbps SSD, using:
  - SK Hynix [H27QEGDVEBLR](#) 32 GB NAND Flash (four ICs for 128 GB total)
  - SK Hynix [H5PS2G63JMR](#) 32 MB DDR2 SDRAM
  - Link A Media LM87800AA SSD Controller

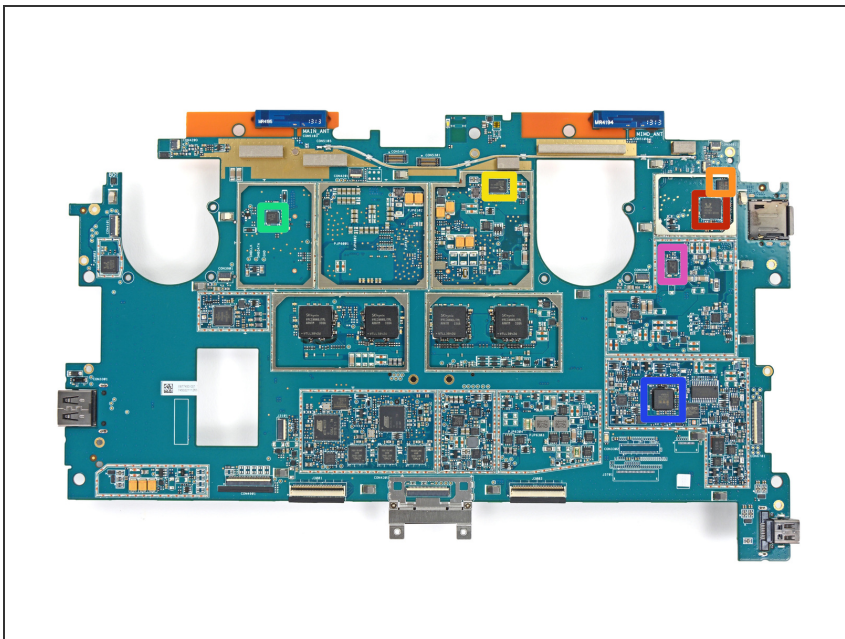
## Step 7



- The ICs on the front side of the motherboard may look like little black squares on the (ahem) outside, but underneath they house some high-tech brainpower:
- SK Hynix H9CCNNN8JTML 8 Gb (1 GB) LPDDR3 RAM (total of 4 \* 1 GB = 4 GB)
- Atmel MXT154E Touchscreen Controllers
- Atmel [UC256L3U](#) 256KB Flash, 32-bit AVR Microcontroller
- Winbond [25X40CL1G](#) 4M-bit Serial Flash
- Parade PS6625
- Realtek ALC3230 Audio Codec
- Atmel U1320J

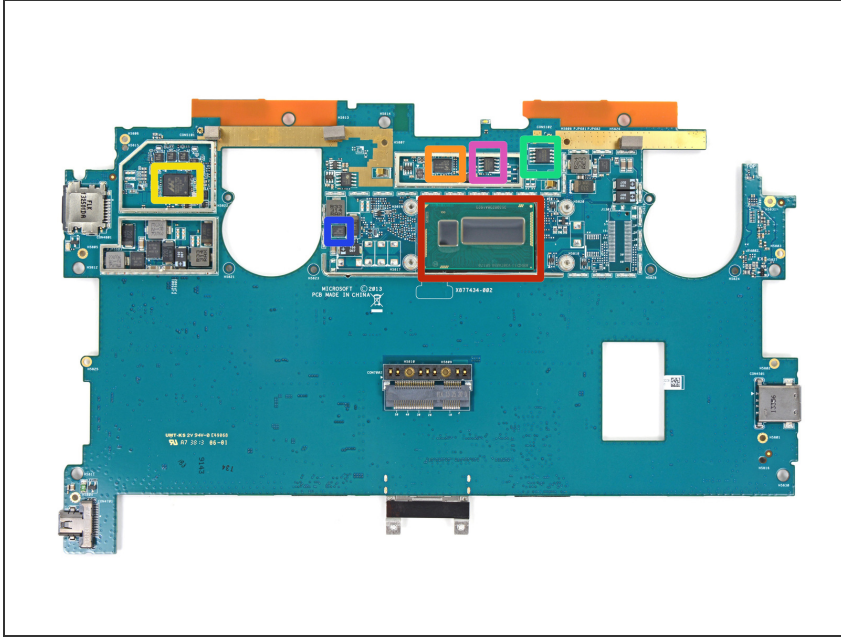


## Step 8



- Yet more ICs adorn this side of the motherboard:
  - Realtek RTS5304
  - MXIC MX25L4006EZNI 4Mbit SPI (Serial Peripheral Interface) Flash
  - Novatek NT96132QG
  - Texas Instruments [TPS5162](#) (ACTIVE) 2-Phase DCAP+ Step-Down Controller
  - ITE IT8528VG
  - Texas Instruments [TPS51367](#) Integrated FET Converter with Ultra-Low Quiescent

## Step 9



- The [ICy party](#) continues on the back side of the motherboard:
  - Intel Core [i5-4200U](#) Processor
  - Novatek NT96132QG
  - Marvell Avastar [88W8797](#) Integrated 2x2 WLAN/Bluetooth/FM Single-Chip SoC
  - Winbond 25Q128FVSQ Serial Flash presumably the next generation of the previous [25Q64FV](#)
  - Texas Instruments [TPS51367](#) Integrated FET Converter with Ultra-Low Quiescent
  - Winbond [25X05CL](#) Serial Flash

## Step 10



- Microsoft *still* adheres the battery to the rear case and *still* warns users not to remove it.
- ⓘ Pretty ironic, considering they clearly know their way around a user-friendly means of securing a battery—[screws](#).
- If you're looking for the secret of the Surface Pro 2's juiced-up battery life, look elsewhere: this is the exact same "Escalade" 42 Wh battery we saw earlier this year.
- ⓘ Instead, look to better power management and the [Haswell i5 chip](#), which ensures that the tablet drinks in moderation.
- The two battery cells are wrangled by a Texas Instruments [BQ30Z55](#) cowpoke battery pack manager.

## Step 11



- Microsoft Surface Pro 2 Repairability Score: **1 out of 10** (10 is easiest to repair)
- The battery is not soldered to the motherboard—so it can be replaced without soldering, if not without great difficulty.
- The SSD *can* be replaced, but not without first risking damage to the tablet simply by opening it.
- There are *over 90 screws* inside this device. Mechanical fasteners are great, but frankly, we draw the line at 89.
- The display assembly consists of a fused glass panel and LCD, and is extremely difficult to remove and replace.
- Tons of adhesive hold everything in place, including the display and battery.
- The delicate and arduous opening procedure leaves no room for mistakes: one slip-up, and you'll likely shear one of the four ribbon cables in the edge of the display.

To reassemble your device, follow these instructions in reverse order.

This document was last generated on 2017-06-18 02:37:38 AM.